Management Concept and Structure of the

JOHN C. STENNIS SPACE CENTER

A Unique Federal City

Director's Message

This booklet covers a broad range of topics including a brief history of NASA's John C. Stennis Space Center and its multiagency concept. Included in this guide are descriptions of interagency agreements, the reimbursable policy, use of Stennis' support contractors and the interagency management apparatus. I trust that you will find this information helpful and informative in your agency's management process at Stennis Space Center.

For more than 30 years, Stennis Space Center has been at the forefront of cutting-edge technology. We are known for our unique, world-class propulsion testing capabilities, leading role in commercializing remote sensing technology, highly skilled work force, customer-oriented culture and multiagency environment.

Stennis Space Center established a strong tradition of reinventing government 25 years ago, before the concept became popular. The result is a unique federal city that is now home to more than 30 federal, state, academic and private organizations. Also included are the Naval Meteorology and Oceanography Command and the Naval Oceanographic Office, which is ranked among the top 10 agencies worldwide with supercomputing capability.

Stennis Space Center is more than advanced technology and state-of-the-art facilities—it's about people and how they work and communicate on a global scale.

Today, we are in the midst of an extremely ambitious era that will leave its mark on the pages of the center's history as we strive to meet the responsibilities before us in support of America's space program. The Stennis work force of more than 4,000 employees includes more than 1,600 scientists and engineers.

As we face the changing times ahead and approach the new millennium, we intend to build on the accomplishments of a great foundation with renewed focus. Stennis Space Center will continue partnering with industry, government and academia to provide our nation a return on its investment in the human exploration and development of space, as well as in our national defense, economic competitiveness and study of the environment.

Roy S. Estess, Director
John C. Stennis Space Center

Stennis Space Center

Resident Agencies

DEPARTMENT OF DEFENSE

Commander, Naval Meteorology and Oceanography Command
Naval Oceanographic Office
Naval Research Laboratory
Special Boat Unit 22, U.S. Navy
Mississippi Army Ammunition Plant
Defense Contract Management Command

DEPARTMENT OF COMMERCE

NOAA National Data Buoy Center
NOAA National Marine Fisheries Service

DEPARTMENT OF TRANSPORTATION

U.S. Coast Guard, NDBC

DEPARTMENT OF INTERIOR

USGS Water Resources Division

ENVIRONMENTAL PROTECTION AGENCY

Environmental Chemistry Laboratory

GULF OF MEXICO PROGRAM

Environmental Protection Agency-lead

GENERAL SERVICES ADMINISTRATION

STATE OF MISSISSIPPI

Mississippi Enterprise for Technology
Earth Imaging Center

STATE OF LOUISIANA

Louisiana Technology Transfer Office

CENTER OF HIGHER LEARNING AND UNIVERSITY RESEARCH

Mississippi State University
University of Southern Mississippi
University of Mississippi
USM Institute of Marine Sciences
University of New Orleans
Pearl River Community College

INSTITUTE FOR TECHNOLOGY DEVELOPMENT

Space Remote Sensing Center

Major Contractors

PRATT & WHITNEY

Supports development testing of newly designed turbopumps for the Space Shuttle Main Engine.

LOCKHEED MARTIN STENNIS OPERATIONS

Provides scientific, engineering and technical support to NASA and the SSC resident agencies. Lockheed Martin also provides propulsion testing support to NASA.

MISSISSIPPI SPACE SERVICES (MSS)

Serves as NASA's base operations services contractor, providing facilities and maintenance support to NASA and the resident agencies at SSC.

STEINHOFF & SADLER INC.

Security services contractor, responsible for the security and protection of all SSC personnel and property.

COMPUTER SCIENCES CORP.

Provides engineering and data systems support to the National Data Buoy Center.

MASON TECHNOLOGIES

Serves as facilities contractor to maintain the deactivated Mississippi Army Ammunition Plant for the U.S. Army.

ROCKETDYNE DIVISION OF ROCKWELL INTERNATIONAL INC.

Responsible for development and flight acceptance testing of the Space Shuttle Main Engines.

Table of Contents

Chapter 1

Historical Perspective

President John F. Kennedy's goal—to land men on the Moon and return them safely to Earth before the end of the 1960s—gave birth to the Apollo program. The vehicle developed to accomplish the president's goal of a lunar mission was launched by a Saturn V rocket. One of NASA's earliest tasks was to build ground facilities for developing, manufacturing, testing and launching the Saturn V rocket.

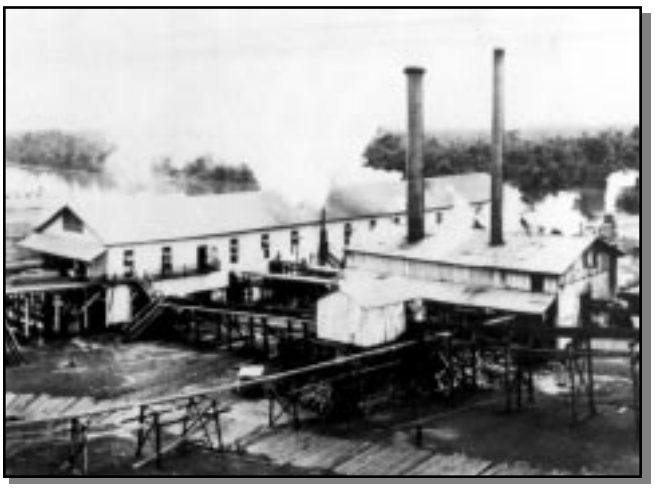
In August 1961, NASA established the Site Evaluation Committee to assess potential locations throughout the United States suitable for testing the first two stages of the massive Saturn V launch vehicle and for testing the heavy-lift launch vehicles of the future.

The major site-selection criteria included: isolation from inhabited areas that would provide an acoustical buffer zone, accessibility to a water transportation system, capable of accommodating transit of the stages of Saturn V and the large amounts of liquid propellants; adaptability to accommodate both the demands of heavy construction of test stands, laboratories, and support facilities; and proximity to a large metropolis that could support the needs of skilled labor and provide adequate educational, medical and other community services to support the families of center employees. Acreage in Hancock and Pearl River counties in Mississippi and St. Tammany Parish in Louisiana met these criteria.

Other factors contributing to the decision included favorable climate and proximity to the first stage manufacturing plant in New Orleans and launch operations at Kennedy Space Center.

Land acquisition, for what was to be known as the Mississippi Test Facility, began in early 1962. NASA purchased, and where necessary acquired by eminent domain, approximately 13,800 acres for the operational area of the test facility. The additional 125,000-acre buffer zone, surrounding the operational area of the center, extends approximately six miles in all directions. It remains largely privately owned but is subject to a perpetual easement that prohibits structures suitable for human habitation.

Construction of the test facility began in May 1963. By mid-1965 the majority of the laboratories, office buildings and industrial shops were completed. The facilities for testing the second stage of the Saturn V (S-II) achieved operational readiness in April 1966. The test facilities for the Saturn V first stage (S-1C) became operational in November



1966. By the end of 1970, 15 S-II flight stages and 12 S-1C flight stages were tested successfully, and subsequently performed flawlessly in flight. This, in effect, marked the completion of the installation's role in support of the Apollo program.

When the test facility was created, its mission was to static fire and flight certify the first and second stages of the Saturn V vehicle. By late 1965, employment at the facility exceeded 6,000. Of these, some 2,000 personnel were construction and activation workers. The remainder included employees of aerospace contractors along with a small contingent of NASA civil servants who were responsible for the overall facility operations. The economic impact of the facility on the surrounding communities was significant.

During the late 1960s, it was generally accepted within NASA that the space program would continue to grow and prosper beyond the Apollo lunar landing missions. Preliminary plans had been formulated for follow-on programs, such as the Apollo Application Program, Space Station and Space Shuttle. However, rising defense expenditures during the Vietnam War, coupled with increased public pressure for the funding of social programs during the late 1960s, resulted in setbacks to growth in space activities. On Feb. 2, 1970, during a press conference on the fiscal year 1971 budget, NASA announced reductions in its operating base and suspension of Saturn V launch vehicle production. Both actions would directly and adversely impact the Mississippi Test Facility.

Even as early as 1968, the uncertainty over the future of the test facility was becoming a matter of deep concern for the surrounding communities and their supporters in Congress. Then, on Aug. 17, 1969, Hurricane Camille—one of the worst hurricanes to hit the United States in recorded history—struck the Mississippi Gulf Coast. Although the facility escaped without major damage, the Mississippi coastline was virtually destroyed.

This natural disaster contributed further to the economic plight of the communities surrounding the facility, which resulted in accelerated NASA studies focused on addressing the future of the facility. On March 19, 1970, the NASA Administrator presented President Richard Nixon with a study that proposed a government-wide experiment for revitalizing the regions devastated by Hurricane Camille. The proposal, which received congressional endorsement, called for the establishment of a regional coast environmental center at the facility, along with a Mississippi Gulf Coast recovery program. NASA also sent the proposal to all federal departments and agencies for consideration.

By mid-1970, the intensive efforts by NASA, the White House and Congress to revitalize the area began to achieve results. On June 16, 1970, NASA announced that Johnson Space Center in Houston would sponsor an Earth Resources Laboratory to be located at the Mississippi Test Facility. Within the next three months, the U.S. Department of Commerce announced the relocation of its Data Buoy project, its commercial fisheries programs and an element of the U.S. Coast Guard to the facility.

As NASA was evaluating and searching for an appropriate role for the testing facility and discussing with other government agencies potential use of the site, the Mississippi congressional delegation supported the concept of a multiagency facility. This effort was led by Sen. John C. Stennis and Rep. William Colmer, both of Mississippi, and Sen. Allen Ellender of Louisiana, with support from a strong congressional delegation and other backers. Their actions led to the enactment of a $10 million appropriation in fiscal year 1971 that provided specifically for the facility to accommodate residents of agencies relocating to the test facility.

Meanwhile, in 1970 and 1971, NASA had begun initial planning studies for the Space Shuttle program. The shuttle was conceived as a reusable, manned vehicle capable of delivering payloads of up to 65,000 pounds into low-Earth orbit. It would return to Earth, like an airplane, landing on a conventional runway. One of the key elements of the shuttle was the development of a high-thrust, reusable rocket engine that would use liquid hydrogen and liquid oxygen propellants to achieve a thrust level of approximately one-half million pounds. Even before the shuttle was approved for development, NASA wanted to proceed with the time-consuming development of the Space Shuttle Main Engine.

NASA established the Site Evaluation Board to study alternate locations in the United States and to recommend the best site for the developmental testing of the shuttle's main engines. Based on the board's findings, NASA announced in March 1971 the Mississippi Test Facility had been selected as the site for this work. Unquestionably, the facility's low population density and large buffer zone, as well as the suitability and low cost of modifying existing facilities, were deciding factors. The facility's waterways provided accessibility to the Pearl River and the Gulf of Mexico that would be used to transport construction materials and later, liquid hydrogen propellants.

Efforts continued to make the facilities available to other government agencies. In late 1971, the Department of the Interior announced plans to locate the Gulf Coast Hydroscience Center, an element of the U.S. Geological Survey, at the facility. The newly established Environmental Protection Agency (EPA) also decided to locate certain laboratory activities at the facility.

While test facility resources were being made available to other government agencies, Mississippi Gov. John Bell Williams created the Governor's Science and Technology Council and established a liaison, and coordinating office at the facility in July 1971. Approximately 18 months later, Gov. Edwin Edwards of Louisiana joined Gov. Williams and established a similar state office. As a result of the governors' actions, the National Science Foundation funded research grants at the facility that were intended to evaluate new approaches to federal-state interactions in the technology transfer area.

By the mid-1970s, the transformation of the test facility into a multiagency facility was well under way. NASA's selection of the site for shuttle engine testing continued the Mississippi site's original role as a propulsion test facility, while the establishment of the Earth Resources Laboratory strengthened NASA's presence and extended the installation's participation in Earth science and applications. The location of elements of the departments of Commerce and the Interior, and the EPA added diversity and served to involve the facility in environmental and oceanographic activities.

In a press release dated June 14, 1974, Dr. James Fletcher, NASA Administrator, declared the multiagency experiment a success, and changed the name of the facility to the National Space Technology Laboratories. In announcing this new and enhanced status, Fletcher said,

> "The National Space Technology Laboratories has developed into an installation where highly qualified capabilities exist for remote sensing, environmental and related research, and technical activities. These capabilities have been enhanced in recent years by the location at the test laboratories of research and technical activities of several other government agencies. The success of this experiment in the collocation of these mutually supporting activities has led me to decide that the National Space Technology Laboratories will have a permanent role in NASA's space applications and technology programs."

In spite of these successful efforts, and NASA's elevation of the installation to independent status in 1974, the installation's future was still in doubt because the perception persisted the facilities were underused. This perception was due in part to a relatively low employment level, which had decreased to approximately 1,270 by 1975, compared to its peak employment level of approximately 6,100 in 1965.

In the spring of 1975, the Department of the Navy indicated a strong interest in consolidating its oceanographic programs and moving them from scattered locations in the Washington, D.C., area to Mississippi. The announcement by the Department of Defense in July 1975 of the pending Navy move to Hancock County prompted a special hearing before a subcommittee of the Senate Appropriations Committee. The subcommittee heard testimony from the Deputy Assistant Secretary of Defense, the NASA Administrator, the Comptroller General, Sen. Stennis, and others on the merits and economics of the proposed move. A report prepared for the subcommittee by the General Accounting Office confirmed the Navy's estimates that, after the initial cost of the move, recurring savings of approximately $2.5 million per year would be realized.

The Navy's move to the National Space Technology Laboratories involved approximately 1,200 to 1,400 civilian personnel and a small number of military personnel. They were to be organized into three commands: the Director, Naval Oceanography and Meteorology, which presided over worldwide Navy oceanography and meteorology facilities; the Naval Oceanographic Office, the largest single component under the Director, Naval Oceanography and Meteorology; and the Naval Ocean Research and Development Activity, which was created by consolidating some elements of the Naval Oceanographic Office with elements of the Office of Naval Research. The actual relocation of Navy personnel began in late 1975 and was substantially completed in 1978.

Even before the Navy's move was complete, the Army announced a decision to build a state-of-the-art, automated ammunition facility at the laboratories on 6,000 acres of land to be leased from NASA. When completed in 1983, the plant would employ approximately 1,500 people.

Concurrent with the expansion of the Department of Defense programs and activities at the laboratories, the NASA programs were also achieving growth and diversity. In May 1977, the National Space Technology Laboratories acquired sponsorship of the Earth Resource Laboratory, which had been established earlier as an element of Johnson Space Center. Its 25 civil servants became permanent employees, and the administration of its support contract was transferred to the laboratories' procurement office. During the ensuing years, personnel sought to expand programmatic involvement to encompass Earth sciences, space applications, technology utilization and transfer, and significant participation in NASA's commercial programs.

By early 1981, the shuttle main engine test program, initiated in June 1975, was well on its way to providing support for the expected 1981 maiden flight of the Space Shuttle. The orbiter Main Propulsion Testing was gearing up as well to achieve full-duration system tests at 100 percent power level. The National Space Technology Laboratories, in turn, was expanding its facility and technical services

support to these vital projects. The timely, cost-effective and high-quality technical support of the shuttle by National Space Technology Laboratories programs and personnel was receiving recognition at NASA Headquarters and other field centers.

By 1986, the Agency decided to relocate some shuttle main engine test activities, which had been conducted on the West Coast, and to consolidate all testing at the National Space Technology Laboratories. The move saved NASA approximately $10 million per year and eliminated testing restrictions that evolved as residential development encroached on the California test site. As a result of that decision, and the need to increase the pace of testing to support the shuttle program, the National Space Technology Laboratories was given the green light to activate a third Space Shuttle Main Engine test stand.

During the shuttle recovery period, the National Space Technology Laboratories continued to expand its programs and enhance its reputation as an important NASA facility. The laboratories engineers were now involved in the development of propulsion test technology and were contributing to safety enhancements for test and launch operations through sensor development, innovative applications, and diagnostic testing. As plans were being prepared by NASA and the Air Force to develop a new generation of launch vehicles, it was decided the south Mississippi facility would play a major role in testing the components, engines and booster systems.

By 1988, the National Space Technology Laboratories had fully evolved into a multiagency, multidisciplinary installation with a population of more than 5,000, and the cost-effectiveness of the multiagency concept had been demonstrated.

On May 20, 1988, President Ronald Reagan signed an executive order to rename the laboratories the John C. Stennis Space Center in honor of the retiring U.S. senator who had worked for establishment of the facility and provided steadfast support to the U.S. space program. With the dedication ceremony Aug. 3, 1988, Stennis Space Center became NASA's ninth field center. It is now one of 10 NASA field centers.

Today, Stennis is one of four NASA centers responsible for the human exploration and development of space and is NASA's lead center for rocket propulsion testing.

Stennis Space Center is also NASA's lead center for commercial remote sensing within the Earth Science Enterprise. Remote sensing personnel work with industry partners to apply remote sensing technology to increase U.S. economic competitiveness.

Throughout the years, Stennis has evolved into a multidisciplinary facility. It is made up of NASA and more than 30 other resident agencies engaged in space, environmental programs and the national defense, including the U.S. Navy's world-class oceanographic and meteorological research and development community.

The 1990s have been an ambitious era at Stennis Space Center as NASA strives to meet current and future responsibilities in support of America's space program.

Stennis Space Center is well positioned to continue collaborating with industry, government and academia in order to provide the United States a solid return on its investment in the human exploration and development of space, national defense and the environment.

Chapter 2

Roles and Missions

National Aeronautics and Space Administration

John C. Stennis Space Center is one of 10 NASA field centers located across the country. It is charged with implementing NASA's mission in areas of responsibility assigned to it by two of the Agency's Strategic Enterprises: the Human Exploration and Development of Space Enterprise and the Earth Science Enterprise.

In NASA's Human Exploration and Development of Space Enterprise, Stennis Space Center is lead center and center of excellence for rocket propulsion testing. In these capacities, the center is responsible for managing all of NASA's rocket propulsion test programs, capabilities and assets located in Alabama, New Mexico and Ohio. Rocket testing conducted locally at Stennis includes checkout tests for all Space Shuttle Main Engines and research and development tests for new engines being developed for future commercial and government launch vehicles. The Stennis Space Center buffer zone is maintained to assure that these activities are not acoustically disruptive to the area.

Within NASA's Earth Science Enterprise, Stennis is lead center for commercial remote sensing and a contributor in coastal research. As NASA's lead center in this field, Stennis is responsible for managing NASA's efforts to support development of the U.S. commercial remote sensing industry and does so through partnerships in applications development, technology development and validation, and customer environment development. In the area of coastal research, Stennis personnel conduct research that meets Enterprise objectives through partnerships with local institutions and especially resident agencies.

NASA uses the developed capabilities to carry out these responsibilities to support local and regional educational needs and to support business through transfer of technology.

To be most effective, a critical dimension of NASA activity at Stennis is the multiagency environment. This affords important opportunities for both cost saving and programmatic success. As the institutional manager of Stennis Space Center, NASA oversees a team of support contractors who operate facilities and laboratories and perform technical, security, maintenance and other support services required for both NASA's programs and those of resident agencies, and other organizations.

Department of Defense

The Department of the Navy is the center's largest resident agency with five organizations represented at the center. Three of these are closely tied in pursuit of the science of the world's oceans. The Navy at Stennis also represents the largest concentration of oceanographers in the world.

Naval Meteorology and Oceanography Command— This command is headed by a rear admiral and is the only

Navy flag headquarters in Mississippi. The command administers a worldwide organization of more than 3,000 officers, enlisted and civilian personnel. Its mission is to collect and interpret oceanographic and meteorological data and provide those services to the U.S. fleet for safe and effective naval operations in peacetime and during war. The command also supports weapons systems design, development and deployment.

Naval Oceanographic Office—This is the largest subordinate command and one of two primary production centers within the Commander, Naval Meteorology and Oceanography Command. It houses one of four Department of Defense Major Shared Resource Centers, operating one of the most powerful supercomputer centers in the Navy and the world. The Naval Oceanographic Office also uses one of the world's largest and most technologically advanced fleet of ships to conduct multidisciplinary surveys of the world's oceans. Data from these surveys are used to compile nautical charts to support worldwide naval operations and maritime commerce. The office supplements its data collection efforts with SURF EAGLE, one of the Department of Defense's most modern satellite data processing programs.

Naval Research Laboratory—This laboratory headquartered in Washington, D.C., is the Navy's principal corporate research laboratory performing oceanographic and atmospheric environmental research. The laboratory also is responsible for research, development and technological advances in broad-based, multidisciplinary programs encompassing ocean sciences and technologies. The Naval Research Laboratory element resident at Stennis Space Center includes the Oceanography Division, Marine Geoscience Division, and Acoustic Simulation, Measurements and Tactics Branch—all elements of the Naval Research Laboratory's Ocean and Atmospheric Science, and Technology Directorate.

Navy Human Resources Service Center, Southeast—This facility provides civilian personnel and Equal Opportunity support to Department of the Navy activities located throughout the southeast and Puerto Rico. Working in concert with on-site human resources offices, the center helps managers and supervisors: staff their organizations; train their employees; comply with labor relations and equal employment opportunity statutes, and regulations; ensure employees have up-to-date benefits program information; process personnel actions; use automated systems, and maintain personnel records.

Special Boat Unit 22—This unit is the only formally recognized riverine command within the Department of Defense. Special Boat Unit 22, a subordinate command of the United States Special Operations Command, is the sole source provider for riverine warfare missions and operations. With worldwide commitments, the unit regularly deploys to Central and South America, Africa and selected countries in the Pacific Rim. The environmental conditions and vast system of inland waterways in and around Stennis Space Center make it an ideal location for training in preparation for the command's unique and challenging mission.

Mississippi Army Ammunition Plant—This facility, located on 4,337 acres in the northern portion of Stennis Space Center, was deactivated in 1991, but continues to have a mission to produce components of the 155mm 483A1 ammunition in the event of a national emergency. In 1992, the U.S. Congress opened the facility to commercial enterprise under the innovative Armament and Retooling

and Manufacturing Support Act. Both commercial and government agencies coexist at the facility today, reducing the cost to the taxpayer to maintain the facility and creating jobs benefiting the economies of the surrounding communities.

Defense Contract Management Command—Personnel in this command provide quality assurance and contract administration services to both NASA and the National Oceanic and Atmospheric Administration (NOAA) at Stennis. Quality assurance services encompass support for Space Shuttle Main Engine testing, meteorology, gas and material analyses, and nondestructive evaluation. Contract administration services include such areas as Davis Bacon labor compliance reviews, overtime reviews and contract closeout activities.

Department of Commerce

The Department of Commerce has two resident laboratories located at the center that are elements of the National Oceanic and Atmospheric Administration.

National Data Buoy Center—This center is part of the National Weather Service and is supported by the personnel and ships of the U.S. Coast Guard. The center operates and maintains a network of buoys and coastal land stations that acquire environmental data used in weather forecasting, public advisories and research programs. The stations are deployed in the Atlantic and Pacific oceans, the Great Lakes, the Gulf of Mexico and the Bering Sea.

National Marine Fisheries Service—This laboratory, together with one located in Pascagoula, is part of the Southeast Fisheries Science Center. Its mission is to provide information for the assessment, conservation and management of living marine resources in the Gulf of Mexico, Caribbean Sea and South Atlantic Ocean. Two NOAA research ships are operated in conjunction with these two Mississippi laboratories.

Department of the Interior

The U.S. Geological Survey, part of the Department of the Interior, has located a number of projects at Stennis that relate to water resources.

Hydrologic Instrumentation Facility—In water resources, the U.S. Geological Survey operates the Hydrologic Instrumentation Facility, which has national responsibility for the design, testing, evaluation, warehousing, repair and calibration of hydrologic instruments. Two projects of the U.S. Geological Survey Office of Surface Water are located at Stennis Space Center. These are the development of computer models to assist in solving surface-water problems and research and calibration that are being conducted in a 35,000-square-foot indoor hydraulic laboratory.

Environmental Protection Agency

The Environmental Protection Agency (EPA) has two organizational elements located at Stennis Space Center.

Environmental Chemistry Laboratory—This laboratory is part of the EPA's Office of Pesticide Programs headquartered in Washington, D.C. The laboratory analyzes a wide variety of environmental and human samples for residue levels of pesticides and related chemicals. The data are used to formulate regulations regarding the use of pesticides throughout the country. Some of the main mission activities of the laboratory include: the review and validation of Environmental Chemistry Methods submitted by pesticide producers; providing quality assurance and technical support to the 50 states in the areas of training, analytical support and dissemination of analytical methods; providing analytical support to the EPA National Dioxin Reassessment/Exposure Initiative Programs; evaluating emerging pesticide analytical technologies and developing methods for new classes of pesticides; and providing analytical support to EPA National Monitoring Programs.

Gulf of Mexico Program—Under the auspices of the EPA, this program consists of a small core of professionals and a larger network of partners comprised of local citizens, the business community, agricultural leaders, environmentalists, scientists, engineers, and state and federal agencies. The program is an experiment in better government and is a unique, nonregulatory, inclusive consortium working with

interests across the Gulf to link environmental protection with sound economic development of the Gulf Coast states.

As the Gulf of Mexico Program looks to the year 2000 and beyond, its diverse membership is focusing on protecting human health and the food supply, maintaining and improving Gulf habitats that support living resources, and maintaining and enhancing the sustainability of Gulf living resources. The overall goal is to achieve significant environmental successes while supporting sound economic development for the region.

Institute for Technology Development

The Spectral Visions division of the Institute for Technology Development is a dedicated research and applications development group of NASA's Commercial Remote Sensing Program.

The Spectral Visions Division—The primary focus of this division is to create new uses for remote sensing technology within the agriculture and forestry marketplace. Spectral Visions works closely with industry and public agencies so that information requirements are understood and matched with the appropriate remote sensing technology. To support this research, Spectral Visions has developed small, inexpensive, multispectral and hyperspectral sensors that are flown in aircraft to simulate datasets that will be collected by future satellites.

State Agencies

Three state initiatives reside at Stennis:

Mississippi Enterprise for Technology—This 501(c)(3) nonprofit organization was created in 1994 as a joint initiative of NASA, the Mississippi Department of Economic and Community Development, and the Mississippi Research Consortium—representing the University of Southern Mississippi, Mississippi State University, the University of Mississippi and Jackson State University. The enterprise assumes the responsibility of the Mississippi Technology Transfer Office and brings together a network of technical, scientific and business experts from government, academia and industry to assist start-up and newly formed companies to develop and refine technology-based services and products. The organization identifies areas of technology that have potential to contribute to the state's long-term economic competitiveness and facilitates collaboration among state and local governments, universities, federal laboratories and the private sector to assist in the transfer of science and technology to the marketplace.

Louisiana Technology Transfer Office—Pursuant to an agreement with NASA at Stennis and at Marshall Space Flight Center, the Louisiana Department of Economic Development established a Louisiana Technology Transfer Office at Stennis Space Center. The Louisiana governor designated the Louisiana Technology Transfer Office as the primary point of contact for federal technology transfer in the state. The Louisiana Business and Technology Center of Louisiana State University, through the Louisiana Department of Economic Development, operates the office and is a clearinghouse for Louisiana businesses. Its purpose is to foster technology commercialization and economic development.

Center of Higher Learning—This cooperative agreement among NASA, the Navy, and the university systems of Mississippi and Louisiana coordinates the on-site educational and research activities of three universities and one community college. These include Mississippi State University, the University of Southern Mississippi, the University of New Orleans and Pearl River Community College. These institutions offer degree programs in engineering, sciences and other fields in support of the continuing education and training needs of NASA, the Navy, contractors and all resident agencies.

Chapter 3

Interagency Agreements and Reimbursable Policy

Resident agencies at Stennis Space Center are autonomous with respect to accomplishment of their functional roles and missions; that is, each agency plans, programs, funds and performs its work independently. However, resident agencies cooperatively fund and equitably share common institutional costs such as facility maintenance, security, fire protection, roads and grounds, janitorial, and other support services.

NASA's relationship with each resident agency is established through a series of formal agreements that allow the agencies to occupy space at Stennis, use center facilities, and access the technical capabilities of NASA/Stennis Space Center support contractors. NASA's authority to enter into these agreements and to provide services thereunder is derived from its organic statute, the National Aeronautics and Space Act of 1958, as amended, 42 U.S.C. Section 2451 et seq. (the Space Act).

The Space Act grants the NASA Administrator broad authority to enter into agreements and other transactions. In turn, the NASA Administrator has delegated much of this authority to other NASA officials. The simplicity and flexibility of agreements under the Space Act has greatly enhanced NASA's ability to accomplish its mission as the host agency at Stennis Space Center.

The system of agreements between NASA and each resident agency consists of three primary documents; an umbrella agreement, supplemented with a Host-Tenant Agreement and a Facility Use Permit. The umbrella agreement, called the Reimbursable Space Act Agreement, sets forth in general terms the understandings between NASA and the resident agency for the conduct of the resident agency's operations at Stennis.

Depending on the size of the proposed activity, the agreement may be executed either by a NASA Headquarters official or the NASA/Stennis Space Center director and an apposite official for the other party. The agreement establishes the principal points of contact between the respective parties. It includes statements of intent with respect to the following matters: the responsibilities of each party; interests in and use of real property including any construction, restoration or alterations which may be necessary; policies for assessment and collection of reimbursable costs; schedule of events; liability; and terms of agreement.

The supplementary documents—the Host-Tenant Agreement and the Facility Use Permit—are executed by the NASA Director of Center Operations and Support and the resident agency's official-in-charge. The Host-Tenant Agreement addresses the specific services that will be provided to an agency at Stennis and the respective responsibilities of NASA and the resident agency for identifying requirements, delivering services and reimbursing costs. The agreement specifies those services that are to be funded as a condition of occupancy, based on square footage of space occupied by the agency, and those services that are to be funded through assessment against personnel occupancy. It further addresses demand services, which refer to utilization of Stennis support services contractors through a work ordering system, and the details of the reimbursement procedure.

The Facility Use Permit sets forth specific conditions for the resident agency's occupancy of Stennis Space Center buildings and facilities. It identifies the specific space to be

occupied, points of responsibility as to building operations, maintenance, security, modifications/improvements and utilities, and other details concerning the facility space occupied by the agency.

Reimbursable Policy

Brief History—When non-NASA federal agencies first began to relocate to the National Space Technology Laboratories in the early 1970s, the policy was to charge those tenants for the additive costs associated with their residency. Resident agencies were charged only for those added costs that NASA would not have incurred if it were the sole occupant of the facility. This policy was considered appropriate at the time since the number of tenants and the space they occupied was relatively small.

When the Navy announced plans in 1975 to locate some 1,200–1,400 people at NSTL, it became clear that there was an urgent need to develop and implement a new reimbursable policy for fully sharing the costs of base operations. In fact, congressional endorsement of the multiagency concept for the installation was predicated on assurances that appropriate reimbursement procedures would be implemented to ensure that NASA would not unduly bear the burden of operational costs. Development of such a policy began in early 1977 and became effective in fiscal year 1978. Senior financial specialists from the center, assisted and guided by financial experts from NASA Headquarters, jointly formulated the policy. Before implementation, the policy was presented to and received the approval of two senior NASA Headquarters officials—the NASA comptroller and the associate administrator for Center Operations—who at the time were responsible for institutional management of all NASA field installations.

Policy Principles—Three principles guided the development of the new reimbursable policy. The first was consistency in terms of applying the provisions of the policy to each of the resident agencies. The only exception sought and approved involved the universities and state agencies. It was reasoned that universities provided essential higher education services to NASA and resident agencies personnel and should, therefore, be encouraged to establish an on-site presence. Similarly, cooperation with state agencies in support of technology transfer efforts was deemed to be an important goal and mission for NASA and other resident agencies. For these reasons, NASA determined it was in the best interests of all to minimize the charges assessed against these educational and state-sponsored organizations.

The other two principles required the new reimbursable policy to be fair and equitable. NASA did not want to subsidize the tenants, nor did it want to overcharge or be subsidized by them. In pursuit of these principles, it was decided that shared costs would include those operations and services that benefited NASA and the resident agencies at large. Consequently, costs associated with a particular NASA program or any other activity that did not benefit the agencies at large would not be shared costs. The resulting assessment is the occupancy charge for which NASA bills the tenants on a monthly basis.

Occupancy Charges—The Stennis Space Center occupancy charges, based on the policy described above, have two cost categories: (1) those costs determined to be shared based on the type and amount of floor space occupied; and, (2) those costs determined to be shared based on the number of personnel.

Floor space charges are applied toward the costs of operating and maintaining facilities, roads and grounds, and providing fire protection, custodial and other common services. Personnel charges are applied toward security, medical, mail, transportation, library and Visitors Center services. Costs that are not appropriately based on floor space or the number of people in an agency are charged either on an actual cost basis, such as utilities, or as a per unit cost, such as communications costs (for details on energy consumption and cost allocation procedures, see Stennis Space Center Handbook 8836.1A). NASA uses a site-wide accounting system that collects all costs relative to a cost center or benefitor/user.

For any current year, the occupancy charges are calculated on actual costs for the fiscal year two years prior. The fact that no allowance is made for an inflation "adder"

to cover this two-year gap speaks to the NASA/Stennis Space Center goal of maintaining occupancy charges at a constant level from year to year, without regard to inflation. At the end of each fiscal year, NASA financial personnel evaluate the actual overall cost of operating the center. After deducting direct program costs and the costs of demand services, the operating base costs are then analyzed to determine and separate those costs that should be shared and those costs that are not to be shared. The objective of this analysis is to ensure that only those costs that benefit all residents in common are allocated to the shared pool in accordance with the principles of the reimbursement policy.

Periodically, NASA meets with resident agencies to ensure there is mutual understanding relative to shared costs and those items included in the shared pool. In this way, the system is fine-tuned in order to stay abreast of current situations.

The second step in calculating the occupancy charges is to identify those costs that are allocable on the basis of the number of people and those allocable to floor space. Once the total cost relating to people is determined, it is then divided by the total number of people at the center.

Floor space assigned to the resident agencies is divided into three categories:

Type I
Air-conditioned office or laboratory space;
Type II
Non air-conditioned shop or work areas; and,
Type III
Non air-conditioned warehouse or storage facilities.

Based on the cost of operation and maintenance, a cost ratio is developed to allocate the cost per square foot for each of these categories. The currently approved ratio is 8:6:1. This means that the cost of maintenance and operation of Type I space, such as office space, is eight times the cost of maintaining and operating warehouse space.

When the total cost associated with floor space is determined, it is divided by the weighted sum of all three types of space in the center, exclusive of the test complex. This gives the cost per square foot of Type III space as shown in the following formula:

Cost/S.F., Type III space = Total cost allocable
to floorspace (8 x Total Space, Type I) +
(6 x Total Space, Type II) + Total Space, Type III

This unit cost is then multiplied by eight and six to determine cost per square foot of Type I and Type II space, respectively. These rates are then multiplied by the square feet of space in each category that is assigned to every agency to derive the total occupancy charges relating to space.

After the occupancy charges for both personnel and floor space are calculated, the estimates are provided to the agencies each year by the end of March, and the charges become effective at the start of the next fiscal year. Funding authority is provided on the basis of these estimates and given to NASA in advance of the quarter for which costs are incurred. Funding authority is subject to administrative charge assessments in accordance with NASA financial management regulations.

Over the years, NASA, the Navy and others have subjected the reimbursable policy to scrutiny and audits. The audits, in general, confirmed the soundness of the policy and offered only minimal critiques and suggestions to ensure that the policy conforms to financial rules and regulations.

Perhaps the best test of the fairness of the policy is the fact that NASA charges itself on the same basis as it charges its tenants. For its civil servants and contractor work force,

NASA effectively pays the identical per person charge and per square foot charge that it charges its resident agencies.

Demand Services—Resident agencies, in accordance with interagency agreements, may request specific technical and institutional services required to support their programs. These are called demand services and are provided to the requesting agency by the NASA support contractors. The policy of NASA at Stennis Space Center is to make available to the resident agencies the same kinds of institutional and technical services that are required to support NASA's own programs. This, in accordance with the Space Act and the Economy Act, provides authority for federal entities to enter into such agreements. This procedure is accomplished in full compliance with the Competition in Contracting Act. NASA solicitations for support contracts not only reflect the multiagency nature of the center but also include adequate descriptions of the types of services and work force requirements necessary to meet the needs of NASA, as well as the resident agencies.

Generally, the state-of-the-art capabilities required to support propulsion testing and other NASA programs encompass a wide scope and diversity of technologies and services that are often sufficient for supporting the programs of the resident agencies. If specialized or agency-unique capabilities are required to support the mission of a particular resident agency, NASA, as the host agency, is not required to provide them. Unique requirements can, of course, be acquired by a resident agency through its own procurement procedures.

Stennis Space Center uses two large, multi-year contracts and two smaller contracts to provide the majority of its support requirements and the support services required by the resident agencies. These contracts include the Facility Operations and Support Services contract, the Test and Technical Support Services contract, the NASA Outsourcing Desktop Initiative contract and the Security Services contract.

Examples of demand services which are available to resident agencies under the Facility Operations and Support Services contract include; facility design, engineering and construction, shop and fabrication work, and institutional services such as photography and videography, graphics, printing and reproduction, transportation, material supplies, and warehousing. Examples of demand services available under the Test and Technical Support Services contract include engineering studies, data system services encompassing software development, computer operation and maintenance, instrument calibration and repair, and other laboratory services.

Finally, specialized security services beyond those that are required for NASA are provided to tenants, as necessary, under NASA's Security Services contract. Dedicated security is often required for certain Department of Defense facilities that house information or equipment that is classified or otherwise subject to national security restrictions.

To gain access to the capabilities of NASA's support contractors, each resident agency should take the following steps:

1. Ensure that the demand services it requires are specified in the Reimbursable Space Act Agreement and in the Host-Tenant agreement with NASA.

2. Ensure that an adequate description of the demand services necessary to meet the agencies' needs is communicated to NASA prior to competition of the support contracts. Because of the multiyear nature of the support contracts, it is also important that each agency forecast its requirements over time as accurately as possible to provide potential contractors with an adequate understanding of the requirements and a fair opportunity to bid on these services effectively.

3. Ensure that adequate funds are deposited with NASA and are available before initiating work requests for demand services. NASA adheres to the same procedure before tasking its contractors for its own projects. Therefore, it is necessary that the projected support requirements for each agency be covered by the appropriate funding authority for that agency, such as an approved Military Interdepartmental Procurement Request, a letter of reimbursable authority or another funding source.

After the prerequisites are met, an agency may access the capabilities of NASA support contractors by submitting a specific, written work request signed by an authorized agency official to the Stennis Space Center work ordering system. Each work request should describe the work in sufficient detail to allow proper execution, cite the funding authority sources against which charges will be collected, and certify that the work is within the intent of that agency's authorization and appropriation laws.

Once the work request is received by NASA, a number is assigned, funding availability for the work is verified and reserved, and the request is channeled to the proper contractor for development of a cost estimate and schedule. The work is then started and the cost is collected and charged against that work request. On a monthly basis, the requestor is provided a summary of all charges applied against this and all other work requests that are placed in the system through the Stennis site-wide reporting system.

The policy of NASA at Stennis Space Center relating to demand services is intended to recover the full costs, both direct and indirect, of the work performed. The direct costs are for the labor hours and materials used in executing the work requests. Indirect costs include administration overhead within the contract, which is charged directly to a work request. Examples of such burden costs include those associated with the costs of vehicles, communications, office supplies and materials, and unapplied labor, all proportionate to the work requested.

Unlike occupancy charges, which are mandatory assessments for common institutional costs, charges for demand services are incurred only when services are used by a resident agency. Each agency makes a choice of either using the NASA support contractor capability or contracting directly for these services. Since the multiagency concept and the reimbursable policy were developed in the 1970s, most resident agencies have continued to choose the NASA-provided services for the majority of their program support requirements due to the high quality of the services and the cost effectiveness.

Benefits of the Reimbursable Policy—Significant benefits accrue to NASA, each resident agency and the taxpayers as a result of the multiagency arrangements at the center. The ability to maximize the use of extensive capabilities and resources and to share costs among the agencies provides significant advantages. First, sharing resources precludes duplication and results in substantial savings to each agency.

The Stennis Space Center fire department is one example. Due to the center's remote location, fire protection services must be available 24 hours a day, seven days a week. A minimum of 23 firefighters plus supporting staff and equipment are required to provide this service at an annual cost of approximately $1 million. By sharing rather than duplicating this resource, NASA and the Navy have been able to significantly reduce capital costs for firefighting facilities and equipment. The agencies are realizing savings of approximately $500,000 per year in operating costs. The smaller agencies at Stennis likewise receive fire protection services at substantial savings. When the Army built its ammunition plant in the 1980s, they found it to their advantage to forego the construction of a fire station. This clearly resulted in one-time savings to the taxpayer of approximately $2 million for facilities and firefighting equipment.

In addition, by sharing the operation costs among all resident agencies, significant savings were realized by NASA, and the departments of the Army and Navy, and other tenants. Similar cost efficiencies are realized by sharing medical, mail, transportation, cafeteria and other services. Another advantage of combining multiagency requirements for technical and institutional services is the increased competition produced by the contract opportunities that are attractive in today's marketplace. Both NASA and the resident agencies benefit, not only from higher quality services, but also from the economies of scale afforded by larger contracts.

Other benefits include: an inherent leveling of workload peaks and valleys that contribute to increased cost efficiencies; an ability to shift resources among jobs, which results in timely response to mission needs; and the spreading of indirect and overhead costs across a larger funding pool, thereby lowering the costs for all users.

Chapter 4

Interagency Management Council and Initiatives

Previous chapters described how Stennis Space Center developed into a unique NASA installation that houses, cooperates with and supports the various resident agencies. Also described was how the agencies shared the costs of common services and operations. However, the multiagency concept at Stennis is not limited to reimbursement and cost sharing. This chapter describes the interagency management apparatus that was created to resolve common issues and implement initiatives that result in greater productivity, enhanced employee training and development, and improved quality of life for all center employees.

In early 1977, the Interagency Management Council was created to discuss and resolve space allocation and other concerns resulting from the relocation of large Navy elements to the installation. Because of the significant work force buildup at the time, the council met on a monthly basis and expanded its agenda to include improvements to institutional and other services, employee training and development, center-wide management policies, and proposed initiatives that impacted all residents in common. As the majority of issues were addressed, the council began to meet on a quarterly basis, but eventually limited their meetings to two or three times a year.

Over the years, the council became a forum in which Stennis resident agencies could communicate, foster better relations, express concerns, suggest improvements and recommend new initiatives and services for all residents. The council created standing committees and councils to deal with specific matters. Examples of these are discussed in the following paragraphs.

The executive committee of the Interagency Management Council was created to review operational policies affecting the agencies, discuss and resolve interagency issues, and develop agendas and schedules for full council meetings. The executive committee is effectively empowered to act on behalf of the council. The executive committee's membership is limited to the director of Stennis Space Center, the commander of the Naval Meteorology and Oceanography Command, and the director of NOAA's National Data Buoy Center. They represent the three largest organizations and are entrusted and committed to protect the interests of all resident agencies. In most cases, the Stennis Space Center director serves as host to the Interagency Management Council and acts as chairman of the council and its executive committee.

Because Stennis is located in a hurricane-prone area, the Emergency Council was established to review and improve the center's preparedness plan for hurricanes and to oversee the preparation and implementation of specific actions called for during emergencies. While the Emergency Council is staffed primarily by personnel from NASA and its Facility Operations and Support Services contractor, each of the larger agencies designates an emergency coordinator who attends the Stennis Emergency Council meetings to ensure the agency's compliance with Stennis' hurricane plan.

The official-in-charge of each agency also designates an emergency operations center within the building space assigned to that agency. These centers stay in touch with the Stennis operations center to follow up on the status of the hurricane or other emergency situation and to communicate with agency personnel in matters relating to site closure or reopening or any other emergency-related site-wide issues. In addition, agency officials-in-charge nominate shelter managers to provide emergency on-site refuge for agency employees and their dependents when evacuations from affected communities become essential.

Another example of interagency cooperation is the site-wide Training Council, which is comprised of the personnel training officers of the federal agencies. The goals of this council are: to provide a wide range of training programs commonly required by more than one agency, such as Equal Employment Opportunity training; to promote economy through the effective use of training resources; and to improve the quality of training programs.

The remainder of this chapter will briefly outline representative examples of interagency initiatives dealing with higher education and the quality-of-life services affecting all center employees.

Center of Higher Learning

In the early 1970s, universities from Mississippi and Louisiana established residencies on site and began offering academic courses for employees. The academic offerings were expanded in the late 1970s and early 1980s, particularly in the areas of marine sciences and oceanography, in part due to the Navy's presence. In an effort to more fully coordinate the academic activities at Stennis, the center director, Roy Estess, convened an ad hoc interagency committee in 1989 to determine the collective higher education needs of the Stennis community. The committee summarized its findings in a position paper that recommended the establishment of the Center of Higher Learning. After consultation with the top Navy commanders, the center director asked the ad hoc interagency committee to draft a requirements document for presentation to representatives of the Mississippi and Louisiana university systems.

The response from both states was very favorable. In May 1989, the Mississippi Commissioner of Higher Learning appointed a program coordinator for the newly established Center of Higher Learning. The Board of Trustees of Mississippi Institutions of Higher Learning approved academic offerings by Mississippi State University and the University of Southern Mississippi. Pearl River Community College, along with the University of Southern Mississippi, offers undergraduate and technical courses. On the Louisiana side, the University of New Orleans was authorized to provide academic offerings at Stennis. The Stennis Space Center Policy Board on Higher Education, which provides the direction and coordination of the Center of Higher Learning programs, replaced the ad hoc committee, whose work was complete.

To meet the academic needs of approximately 4,000 center employees, the Center of Higher Learning currently offers a higher education program of the finest quality—one that provides a coordinated multiuniversity approach for interdisciplinary education leading to 10 advanced degree programs in the areas of mathematics, applied physics, computer sciences, marine sciences, geography and various engineering fields. The Center of Higher Learning is funded through student tuitions and fees, state Institutions of Higher Learning, NASA and the Navy. Stennis Space Center provides strong support by making on-site offices and laboratory and classroom facilities available and by encouraging employees to take advantage of the on-site educational opportunities, as well as serve as adjunct part-time professors when qualified.

Employee Morale and Welfare Initiatives

The success of interagency cooperation at Stennis is reflected in the activities of its locally sponsored organizations and the various businesses that offer their services at Stennis to improve the quality of the workplace. Employees of center agencies united in order to develop convenient on-site solutions to their problems and concerns. An early example is the Stennis Space Center Recreational Association, a nonprofit Mississippi corporation, run by a board of directors that is comprised of various agency representatives who are selected in a site-wide annual election. The association offers a variety of recreational and social activities, including softball, Mardi Gras krewe, and many other hobby-oriented organizations.

Because of the existence of the large uninhabited natural buffer zone surrounding the center, employees at

Stennis are relatively isolated in terms of being able to conduct necessary personal business during working hours. Employees and management both expressed frustrations about the difficulty of getting a car repaired. NASA personnel at Stennis Space Center worked with the resident agencies to reduce this inconvenience, and the ensuing loss of productive time resulting from its remote location, by entering into special arrangements with the business community to provide on-site car repair services.

The NASA Exchange, like its military counterpart, provides for the morale and welfare of employees with the support and cooperation of other agencies at Stennis. It has concessionaire arrangements with a bank, dry cleaner, shoe repair service, barber shop and service station. The concessionaires competed at their inception, and the NASA Exchange oversees them to ensure efficient and effective operations.

In response to requests at the Interagency Management Council meetings from the heads of other federal agencies, NASA at Stennis also established a childcare center, wellness center and retail store. Existing floor space in government buildings was used to house most of the commercial activities, except in the cases of the service station, childcare center and wellness center. New facilities were constructed for these three activities. Construction of the service station and the childcare facility was originally funded entirely by private entrepreneurs. Subsequently, NASA appropriated funding that accommodated a transfer of the childcare facility from the contractor to NASA control.

The Stennis Child Development Center Inc. was created to provide quality educational and developmental childcare for the children and grandchildren, six-weeks to six-years of age, of Stennis employees.

A group of parents representing various agencies at Stennis first conceived the idea of a childcare center. They proposed that an on-site center would solve some problems that working parents were experiencing. The childcare center was originally built by a nonprofit private organization that planned to recoup its investment over the term of its concessionaire agreement. After several years of operation, the organization made a business decision to terminate operations as permitted in the concessionaire agreement, and the NASA Exchange agreed to purchase the company's interest in the facility. The Exchange operated the Stennis Child Development Center for an interim transition period and then turned over the management to a nonprofit parent organization formed expressly for the childcare center's operation.

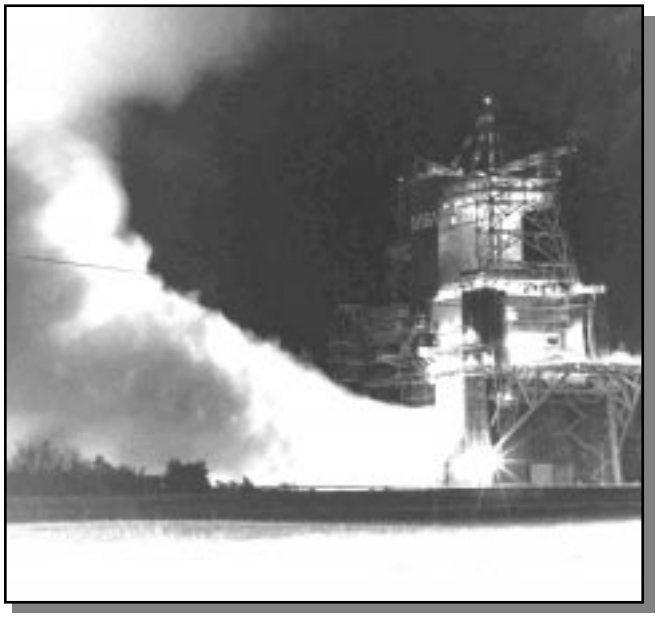
The Stennis Space Center Wellness Center provides fitness options to the work force through optional membership. The center addresses the lifestyle components of its employees by providing education, screening, prescriptive and behavioral change programs in the areas of nutrition, fitness, safety/health, stress management and substance abuse. All programs are designed to reduce the escalation of preventable health care costs.

The concept of the wellness center at Stennis was first advocated by an interagency committee appointed by the center director in response to requests from other agency managers. The wellness center, built with federally appropriated funds, operates entirely independent of the NASA Exchange. Pursuant to government-wide authority encouraging the establishment of wellness programs, the center is operated and staffed by the Stennis Space Center Facility Operations and Support Services contractor. Operating costs are funded from a combination of both use dues and fees and NASA-resident agency support. Various contractors and resident agencies contributed heavily to the acquisition of equipment for the center. An executive committee, comprised of different agency and contractor representatives, acts as a kind of de facto board of directors.

These interagency activities illustrate just some of the advantages that the multiagency concept offers for Stennis Space Center resident agencies and their employees. Through cooperative forums such as the Interagency Management Council, Stennis continually strives to improve the quality of productivity in the workplace.

Chapter 5

Benefits of Multiagency Cooperation



This document describes the numerous advantages of the multiagency concept utilized at Stennis. Chapter three demonstrated the cost effectiveness of the reimbursable policy for resident agencies. It was shown that economies of scale are achieved by sharing resources, precluding duplication, and making maximum use of existing facilities, as well as institutional and technical services.

Chapter four described the Interagency Management Council and listed many of its initiatives that resulted in both greater productivity and improved quality of life for all center employees. One of these initiatives is the establishment of the Center of Higher Learning, which involves four universities that support the academic and research needs of resident agencies and contractors. The initiatives also included the creation of the Stennis Child Development Center, the wellness center and other services that enhance the quality and productivity of the workplace.

The purpose of this chapter is to demonstrate that benefits of the multiagency concept are not limited to cost savings but also encompass qualitative advantages in development and management practices. Stennis Space Center has demonstrated that the individual missions of each organization and the collective goals of all parties are better served through the multiagency concept.

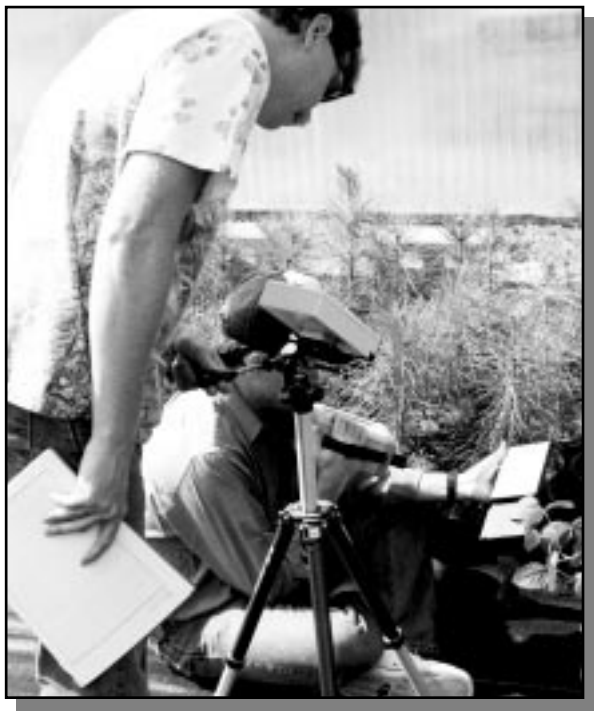
For example, in 1994, because of the interaction and synergism between NASA and NOAA, scientists developed C Coast, a low-cost, easy-to-use software program for computer-based observations and analyses of sea temperatures. As a result of C Coast, NOAA is better able to monitor coastal water temperatures from satellite data and respond to and possibly preclude major red tide outbreaks in the future.

Another example of this kind of cooperation at Stennis can be seen in the month-long seatruthing cruise that NASA's scientists from the Earth System Science Office take in conjunction with the Naval Oceanographic Office.

The joint crew primarily takes samples from the Gulf of Thailand. The purpose of the expedition is to collect ocean bio-optics information to verify the accuracy of ocean-color satellites. In many areas, ocean color is mostly determined by the concentration of microscopic marine plants called phytoplankton. The accurate measurement of phytoplankton concentration in the Earth's oceans is important to climate change research and to local economic concerns such as commercial fishing.

Also, the NASA Education and University Affairs Office at Stennis and the Commander, Naval Meteorology and Oceanography Command came together in a unique collaboration to connect parents and their children. In this case, the children, students in the Navy's Marco Polo student research program, were 6,000 miles away from home and

out at sea aboard the Navy's latest survey vessel. The parents were located at Stennis Space Center in the classroom of the Mississippi Interactive Video Network. Creative uses of satellites and land-based video routing capabilities made this historic connection possible.



Finally, the synergism and interagency cooperation at Stennis can be best illustrated by the creation of the Gulf of Mexico Program described in chapter two. The creation of this program was clearly spurred by the collocation of technical agencies at Stennis that deal with environmental sciences and remote sensing of the Earth and its oceans. The EPA presently leads the program, with participation by NASA and NOAA elements at Stennis. Its main purpose is to develop and implement a comprehensive plan for the preservation and future protection of the Gulf of Mexico's marine resources. In addition to the resident agencies at the center, this initiative has attracted local, state and private participation from the five Gulf states and may, in the future, include participation by the government of Mexico. Again, this project demonstrates the effectiveness of multiagency cooperation, combining the technical capabilities of federal agencies and the capabilities of state organizations, universities and the private sector to address a major national problem.

In closing, we believe the multiagency structure at the John C. Stennis Space Center is an optimum setting for combining national resources in the conduct of compatible federal, state and local missions.

The ability to share common, as well as individual, resources in such essential areas as physical infrastructure, technical expertise, and research and education capabilities is key to the synergism created in the process.

Chapter 6

Community Involvement Initiatives

For more than 30 years, Stennis Space Center managers have participated in and encouraged their employees to participate in activities and projects intended to make positive contributions to the quality of life in the communities in which they live. A unique feature of this center is the fact that it is surrounded by many small towns and communities located in Hancock, Pearl River, Harrison and Jackson counties in Mississippi, and in St. Tammany Parish in Louisiana.

Center employees of NASA, the Navy and the other resident agencies at Stennis often take lead roles in the affairs of their communities, serving as coaches for youth league teams, members or officers of local school boards, parent-teacher associations and chambers of commerce, and in other voluntary roles.

The purpose of this chapter is to highlight representative examples of how NASA and the resident agencies cooperate with, assist and participate in initiatives that benefit the center and communities as a whole.

Public Information and Mutual Assistance

Since its inception, NASA has had an open policy concerning its activities and operations. Nearly all NASA installations have a visitors center, where the public is received and informed through bus tours, videos and lectures about the national space program and about the activities and projects of the individual center. With the advent of the multiagency concept, a Stennis interagency committee planned a new addition to the Stennis Space Center Visitors Center for housing exhibits from all of the resident agencies. This addition was constructed using non-appropriated funds and equipped with various displays and models unique to each agency.

To reflect the space, oceanographic and Earth sciences programs of NASA and the resident agencies, the Stennis Visitors Center was given the theme of Space-Oceans-Earth. It was remodeled in 1991, and through the years, the number of visitors has grown from a few thousand in the early 1970s to the present number that exceeds 110,000 per year and includes more than 36,000 students.

Stennis does not rely on the Visitors Center alone to inform the public. A Speakers Bureau was established through the NASA Public Affairs Office to respond to requests from community, civic and professional groups for speakers on specific topics of interest. In addition, NASA invites community leaders to periodic briefings and the public to open house events, where they are updated on the center's plans and programs, and given opportunities to tour the site during a windshield tour.

The center demonstrates its concern for the welfare of the surrounding communities in a variety of ways. Important among these are the generous contributions employees from all of the federal agencies and industrial contractors make

during the annual charity drive, the Combined Agencies Campaign. The Combined Agencies Campaign pools the federal portion—Combined Federal Campaign—and its industrial counterpart—the United Way. In recent years, the annual campaign contributions have exceeded $100,000, the bulk of which was pledged to the United Way of nearby communities. Under the multiagency concept, the chairmanship of the Combined Federal Campaign portion of the annual drive is rotated between NASA, the Navy commands and NOAA's National Data Buoy Center. Employees also participate in Red Cross blood drives scheduled throughout the year.

In addition, center employees participate in other charitable community projects. A good example is the center's sponsorship of the Special Olympics field day. Annually, since 1983, Stennis has invited physically and mentally challenged athletes to come to the center. Approximately 200 to 400 special athletes participate in events ranging from track to softball to wheelchair races.

An on-site NASA contractor occasionally takes the lead in planning and executing a community-related project, such as sponsoring a toy drive each Christmas. Each year, agencies collect hundreds of toys from federal and industrial contractor employees and donate them to needy children in the surrounding communities. Food, clothing and other charitable drives are also periodically undertaken by the agencies for the benefit of needy families in the area.

Other Stennis community assistance projects involve emergency aid and rescue agreements between NASA and the surrounding communities. Based on these agreements, the center provides fire and ambulance assistance to rural communities in the event of a major fire or other emergency.

Economic Development Activities

Each year, the Stennis Space Center director invites business, educational and political leaders of the local communities to Stennis for a briefing on the programs and activities of NASA and the resident agencies. As part of these briefings, the community leaders are given a report relating to the economic impact of the center on local communities.

These local communities comprise Hancock, Harrison and Pearl River counties in Mississippi and St. Tammany Parish in Louisiana. The report considers the direct and indirect effects of a hypothetical closure of Stennis and the resulting economic impact on the communities in the areas of total jobs, retail sales, personal income and local government tax revenues.

Through the years, the center has worked cooperatively with local, state and regional organizations in furthering their economic development objectives. Chambers of Commerce from surrounding communities in Mississippi and Louisiana are periodically hosted and briefed on center activities. Center senior managers are often invited to serve as key speakers for chamber annual events, and many employees participate in their hometown chamber organizations.

A second form of cooperation involves supporting fairs and workshops for small businesses. The center periodically hosts these fairs and workshops on site or leads them at other locations in cooperation with local congressmen or state representatives. The objective is to familiarize small businesses with the center's ongoing activities and programs. Businesses are encouraged and given advice on how to compete for federal and private opportunities available at Stennis.

The Stennis center director also established a Minority Business Enterprise Council, chaired by the center's deputy director, for ensuring adequate support by all elements of the center for the minority business program. As a result of this effort, awards to small businesses, in proportion to the total awards by NASA at Stennis, increased from approximately 7.7 percent in 1988 to 15.7 percent in 1993; likewise, awards to small disadvantaged businesses rose from approximately 2 percent in 1988 to 8 percent in 1993.

A third form of economic cooperation relates to the transfer of federal technology to states for use in both public and private sectors. Stennis Space Center has ongoing technology transfer agreements with the states of Mississippi and Louisiana. On-site state offices coordinate and implement these agreements. This effort is supported by NASA Headquarters, which oversees a wide range of Agency projects designed to utilize and commercialize aerospace technology.

Representative examples of Agency-wide projects include the Small Business Innovation Research Program and the NASA Earth Observations Commercial Applications Program. Stennis personnel assist and encourage local businesses and entrepreneurs to respond to the solicitations and opportunities offered by these and other programs. Currently, local businesses in both Mississippi and Louisiana have successfully competed and are participating in the research program, with the ultimate goal of developing commercial products and services.

For the past 20 years, local and state officials have recognized Stennis Space Center as the emerging high-technology center in the state of Mississippi. In recognition of this, and in furthering the goals of technology transfer and the creation of additional technological jobs, the Mississippi State Legislature approved a bill to construct the Mississippi Technology Transfer Center at Stennis at a cost of approximately $4.4 million. The governor signed the bill into law in 1985, and the state designed and built the facility in record time. On June 11, 1987, Gov. Bill Allain dedicated the facility and signed official documents transferring ownership to NASA. This unprecedented act is evidence of the cooperative partnership built among Stennis Space Center, the local communities and the state of Mississippi.

Since its dedication, the Mississippi Technology Transfer Center has become home to the Center of Higher Learning, state technology transfer offices and NASA's technology transfer officials. The creation of this center has further spurred utilization and commercialization of federal technology. Evidence of this is the spinoff of small technical companies that have been created in the surrounding communities. A recent study indicates that 12 such companies have evolved in recent years, employing approximately 320 people, and encompassing diverse technologies, including environmental sciences, data systems, communications and the manufacture of oceanographic instruments.

The kickoff of a pilot program designed to enhance and expand technological initiatives within Mississippi is the most recent example of the technology transfer center spurring technological innovation. The Mississippi Enterprise for Technology was established through the joint efforts of the Mississippi Department of Economic and Community Development, the Mississippi Research Consortium, Stennis Space Center, Mississippi Power Co., the Southern Technology Applications Center, and various other state, business and industry developers. The mission of the enterprise, which operates as a company under the control of a board of directors, is to enhance the creation, growth and expansion of technology-based Mississippi business and industry.

The main reasons for the creation of the Mississippi Enterprise for Technology were to build the strategic location for state, federal and private sector technology officials with offices in the technology transfer center, and Stennis, as well as the support that Stennis provides to technology utilization and commercialization.

In all these endeavors, Stennis Space Center and its employees have demonstrated concern and willingness to do their parts to enhance the quality of life in their communities. The federal and state agencies at Stennis, together with their corporate counterparts, are committed to

continue the partnerships established with local schools, businesses, and city and state governments.

Education Program Initiatives

The NASA Education and University Affairs Office at Stennis offers a wide range of education services to teachers and students. While the program is not limited geographically, teachers and students from the surrounding areas in Mississippi and Louisiana are the major beneficiaries. The program is in line with NASA's Agency-wide education objectives—to stimulate math, science, technology and geography education in the primary grades and to maintain high school and college students' interest in pursuing careers in engineering and the sciences.

Since its dedication in 1985, the Educator Resource Center has served more than 68,000 educators. Intended to serve elementary and high school teachers, the resource center contains a vast collection of education materials, including videotapes, software, printed materials and lesson plans. Subjects range from Earth and space sciences to meteorology, marine and environmental sciences, and astronomy.

Each year Stennis aerospace education specialists host a wide variety of staff development workshops for thousands of elementary and secondary teachers of math, science, technology and other subjects. Topics range from math and science to specialized workshops on propulsion, remote sensing, Earth resources and meteorology.

The Educator Resource Center, one of the sites that make up the Mississippi Interactive Video Network, is a two-way audio, video and data communication network that links schools and resource centers using conventional phone lines. Students and educators are able to participate in a variety of programs through the network. The Passport to Knowledge program offers students the opportunity to participate in two-way, interactive programs, such as Live from Antarctica and Live from Stennis Space Center.

In addition to teacher-related programs, Stennis offers significant programs designed for student outreach. Youth educational programs offered through the Visitors Center include: Early Education Monday for children, ages three to six; Lower Elementary Aerospace Program for children ages seven to 10; and the Intermediate Space Technology Education Program designed for children in grades five through eight.

Astro Camp summer sessions provide children, ages seven through 12, a fun-filled week of simulated space adventures. For students in grades 10-12, NASA's Summer High School Apprenticeship Research Program is designed to attract under represented minorities and women to science and engineering careers by providing selected students with an eight-week apprenticeship experience, with pay, in technical areas under the supervision of NASA mentors.

Summer employment is also available for high school and college students. In addition, both NASA and the Navy participate in cooperative education programs with designated universities to provide college students with practical experiences in their specialty areas (such as accounting, engineering and law).

The Gulf Coast Education Initiative Consortium is a unique partnership among NASA at Stennis Space Center, the University of Southern Mississippi, and educators and administrators to support the efforts of six counties in Mississippi, one parish in Louisiana and two Catholic dioceses in developing a quality education system. Through the integration of technology and research, the consortium serves the member districts by providing professional staff development for teachers and administrators and enhancing communication among the member districts with a goal of improving student performance. The 19 school districts contain more than 200 schools, 6,000 teachers and 116,000 students.

The Education and University Affairs Office is also in full compliance with the Stevenson-Wydler Technology Innovation Act, which established the foundation for technology transfer within the federal government. Under this legislation, federal agencies can donate surplus equipment to schools.

As NASA's lead center for commercial remote sensing, Stennis Space Center introduced the Workforce Development Education and Training (WDET) program in Mississippi two years ago. WDET has been given the task of ensuring that a trained work force will be available to populate the rapidly growing remote sensing industry. This national plan is based on the successful approach demonstrated by the Mississippi Model for WDET, currently being implemented by CRSP's Mississippi Space Commerce Initiative. NASA, the U.S. departments of Education, Labor, Agriculture, Interior and Defense will work together to ensure that all students are exposed to remote sensing technology. Industries, colleges and universities will also be part of the network.

The Gulf of Mexico Education Commission is part of the Gulf of Mexico Accord. The Accord, under the guidance of the North American Free Trade Agreement, calls for cooperative efforts between the United States and Mexico in six major areas: investment; communication and transportation; health; agriculture; tourism; and education and culture.

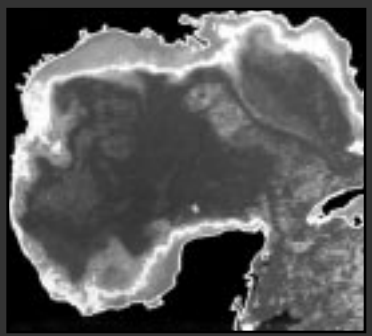
The commission consists of members from the states bordering the Gulf of Mexico, including the United States and Mexico, as well as observers from Canada.

The U.S. Navy also sponsors and implements education initiatives at Stennis Space Center. In addition to providing lectures and materials on oceanography and marine sciences, Navy personnel also take the lead in innovative education projects of their own.

NASA, resident agencies and contractor engineers, and scientists also serve as judges in science fairs at the local, regional and state levels.

The Stennis education initiatives extend beyond grades K-12. These initiatives also encompass programs to support university undergraduate and graduate students through fellowships, grants and research associateships. This support also extends to university faculty.

Through all of these endeavors, Stennis Space Center strives to build partnerships with the local community, while at the same time stimulating interest in mathematics and science in support of the national education goals.



www.ssc.nasa.gov

NP-1999-05-00032-SSC